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UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>19 November 2004</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

  4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

  a)☐ All   b)☐ Some * c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 11-19-2004 have been fully considered but they are not persuasive.

1. The applicant's amendment overcomes the examiner's previous objections regarding priority, the abstract and claims 1/6.

2. The applicant argues (for claim 1) that "...Wang does not teach a method for selecting one of a plurality of mobiles by a BTS having a plurality of transmitters. Wang discloses a method and system for supporting QOS parameters in a wireless telecommunication network...". The examiner disagrees since this is a broad statement and interprets Wang as teaching this concept – Abstract teaches a BTS using QoS software to communicate data to/from a mobile, also see C3, L59 to C4, L12. Wang's invention teaches an "operational concept" as to how the system work, hence the control software/hardware is located within the cellular network and would be located at the BTS, BSC and MSC components (which reads on the claim).

3. The applicant argues that "..Wang does not teach or suggest a system comprising an initial buffer and a retransmission buffer and the method of selecting a mobile station associated with a transmitter transmitting data having a high priority among the transmitters associated with at least two retransmission buffers, when the retransmission data is stored in at least the two retransmission buffers among the retransmission buffers of the plurality of transmitters...". The examiner disagrees since Wang does teach buffers (C5, L6-11) and QoS which inherently provides prioritizing users and data over an ever-changing communications network. QoS inherently uses buffers to store data and output it as communication links become available.

4. The applicant argues that the prior art (Wang/Raitola) does not teach/cure "...Wang failings to disclose the BTS providing a data service to the selected one of the mobiles based on C/I information from the mobiles...". The examiner disagrees since Raitola clearly teaches transmitting data in a wireless system based on Qos and measured C/I data (Raitola teaches packet transmission in a wireless system (C1, L19-

40) that uses Qos (C3, L23-30), multiple transmitters (C4, L35-41), measurement of C/I ratio (C9, L63-67) and buffer management for transmission/retransmission (C1 1, L11-22 and C12, L49 to C13, L25).

    5. The remaining arguments are focused on claim 6 (and repeat the above arguments).

    6. The original office action is provided for informational purposes only.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6 and 8-10 rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. US 6,606,311 and further in view of Raitola et al. US 6,317,418 (hereafter Wang and Raitola).

    As per **claim 1**, Wang teaches a method for selecting one of a plurality of mobiles by a BTS having a plurality of transmitters (figure 4 shows communication between BTS #408 to one mobile #412 – BTS's [eg. CDMA is disclosed, see C2, L32-50] inherently comprise multiple transmitters and support multiple users in the cell), each of the transmitters having a retransmission buffer for storing retransmission data and an initial transmission buffer for storing initial data (C5, L6-11 teaches use of buffers and figure 4 #202 shows use of TCP/IP which has retransmission capability), the plurality of transmitters being capable of providing a data service to associated mobiles (C2, L59-67 teaches IP/Internet data support),
    Selecting a mobile associated with a transmitter transmitting data having a high priority among the transmitters with at least two retransmission buffers, when the retransmission data is stored in at least two retransmission buffers among the two retransmission buffers among the retransmission buffers of the plurality of transmitters (Wang's teachings of QoS via multiple classes, see figure 1 which shows Class 1, 2 and 3 along with packet transmission and buffering (C4, L59 to C5, L11) reads on selecting higher priority data to be transmitted/retransmitted before lower priority data if/when retransmission data is stored in one or more buffers);
    But is silent on the BTS providing a data service to the selected one of the mobiles based on C/I information from the mobiles, comprising the steps of:

Analyzing the retransmission buffers and the initial transmission buffers in the plurality of transmitters associated with the mobiles having transmitted at least two <u>blocks of</u> (pieces of) C/I information, when at least (the two pieces of) <u>blocks of</u> C/I information are equal to each other, and selecting a mobile associated with a retransmission buffer in which retransmission data is stored, when the retransmission data is stored in said buffer among the retransmission buffers of the plurality of transmitters;

Selecting a mobile associated with the retransmission buffer having a longest data length among the retransmission buffers in the two transmitters, when there exists at least two transmitters transmitting data having a high priority.

Raitola teaches packet transmission in a wireless system (C1, L19-40) that uses QoS (C3, L23-30), multiple transmitters (C4, L35-41), measurement of C/I ratio (C9, L63-67) and buffer management for transmission/retransmission (C11, L11-22 and C12, L49 to C13, L25). Hence, one skilled would use enhance Wang's QoS system with one that measures C/I to determine need for retransmission of data that did not satisfy the required quality level and is the highest priority data with the longest/most data in it's respective buffer (eg. transmit/retransmit in successive order the buffers containing the most data from the highest priority users first).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Wang, such that C/I information is used, retransmission and initial transmission buffers are used, selecting a mobile associated with a retransmission buffer in which retransmission data is stored and selecting a mobile associated with the retransmission buffer having a longest data length among the retransmission buffers in the two transmitters, when there exists at least two transmitters transmitting data having a high priority, to provide means for the QoS functionality to take into account the RF link's C/I to when buffering data for initial and retransmission of data service.

As per **claim 2**, Wang in view of Raitola teaches claim 1 **but is silent on** comprising the step of retransmitting data upon failure to receive a response signal from the mobile station within a predetermined time after transmitting the data stored in the transmitter associated with the selected mobile.

Raitola teaches a "limit" on how many times a retransmission may be requested. One skilled can also adapt this to be a time limit such that the unit will retransmit if an Acknowledgement is not received within a certain amount of time. The examiner notes that TCP has timer/timeout functionality that operates in a similar fashion and Wang discloses TCP/IP in figure 2.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Wang in view of Raitola, such that it retransmits data upon failure to receive a response signal from the mobile station within a predetermined time after transmitting the data stored in the transmitter associated with the selected mobile, to provide means for ensuring that data is timely received and acknowledgement during transmission.

As per **claim 3**, Wang in view of Raitola teaches claim 1 **but is silent on** comprising the step of retransmitting only previously failed data when a response signal received from the mobile station within a predetermined time after transmitting the data stored in the transmitter associated with the selected mobile indicates that an error has occurred in part of the transmitted data.

The examiner notes that TCP has ACK/NACK functionality that operates in a similar fashion and Wang discloses TCP/IP in figure 2. Hence, the mobile would request a retransmission of data if it is determined that said data is corrupted (eg. via CRC).

. Raitola teaches a "limit" on how many times a retransmission may be requested. One skilled can also adapt this to be a time limit such that the unit will retransmit if an Acknowledgement is not received within a certain amount of time. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Wang in view of Raitola , such that

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Wang in view of Raitola, such that it retransmits only previously failed data when a response signal received from the mobile station within a predetermined time after transmitting the data stored in the transmitter associated with the selected mobile indicates that an error has occurred in part of the transmitted data, to provide means for ensuring that data is timely received if corruption occurs during transmission.

As per **claim 4**, Wang in view of Raitola teaches claim 1 **but is silent on** comprising wherein the BTS selects one of the transmitters excluding a transmitter currently transmitting data to the current mobile.

Wang shows a BTS communicating with a mobile (figure 4) whereby any additional communication (eg. increase in data rate) would either require additional bandwidth on the current channel/transmitter and/or support from another transmitter. Hence one skilled would provide support from either the current transmitter and/or from a second, different transmitter if the user requires an increased data rate.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Wang in view of Raitola, such that the BTS selects one of the transmitters excluding a transmitter currently transmitting data to the current mobile, to provide means for using only available transmitters that are not currently supporting other RF transmissions (which could upset that transmission).

As per **claim 5**, Wang in view of Raitola teaches claim 1 **but is silent on** wherein the BTS selects one of the transmitters excluding transmitters whose response waiting time has not expired after transmitting data.

The examiner notes that TCP has ACK/NACK functionality that operates in a similar fashion and Wang discloses TCP/IP in figure 2. Hence, the mobile would request a retransmission of data if it is determined that said data was corrupted (eg. via CRC) but one skilled would ensure that any available transmitter can be used except those that are currently transmitting OR those that are in process of waiting for a

transmission timer to expire (eg. sent data but may need to send it again if corrupted during transmission). This ensures that only completely free transmitters are used and do not impinge on any supporting communications.

Raitola teaches a "limit" on how many times a retransmission may be requested. One skilled can also adapt this to be a time limit such that the unit will retransmit if an Acknowledgement is not received within a certain amount of time.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Wang in view of Raitola, such that the BTS selects one of the transmitters excluding transmitters whose response waiting time has not expired after transmitting data, to provide means for using only available transmitters that are not currently supporting other RF transmissions (eg. either supporting actual communications or waiting for a response).

As per **claim 6**, Wang teaches a method for selecting one of a plurality of mobiles by a BTS having a plurality of transmitters (figure 4 shows communication between BTS #408 to one mobile #412 – BTS's [eg. CDMA is disclosed, see C2, L32-50] inherently comprise multiple transmitters and support multiple users in the cell), the number of the transmitters being equal to the number of mobiles for transmitting the data (Wang discloses CDMA which can support a BTS having the number of its transmitters equal to the number of mobiles in its cell that are transmitting data), each of the transmitters having a retransmission buffer for storing retransmission data and an initial transmission buffer for storing initial data (C5, L6-11 teaches use of buffers and figure 4 #202 shows use of TCP/IP which has transmission/retransmission capability AND Wang teaches QoS via multiple classes, see figure 1 which shows Class 1, 2 and 3 along with packet transmission and buffering (C4, L59 to C5, L11) so that higher priority data si to be transmitted/retransmitted before lower priority data if/when retransmission data is stored in one or more buffers), the plurality of transmitters being capable of providing a data service (C2, L59-67 teaches IP/Internet data support),

But is silent on the BTS providing a data service to the selected one of mobiles based on C/I information from the mobiles comprising the steps of:

Selecting by the BTS a transmitter having a C/I received from the mobiles among the transmitters other than transmitters having no data and transmitters whose response waiting time has not expired after transmitting data and transmitting data to the selected mobiles.

Raitola teaches packet transmission in a wireless system (C1, L19-40) that uses QoS (C3, L23-30), multiple transmitters (C4, L35-41), measurement of C/I ratio (C9, L63-67) and buffer management for transmission/retransmission (C11, L11-22 and C12, L49 to C13, L25). Hence, one skilled would use enhance Wang's QoS system with one that measures C/I to determine need for retransmission of data that did not satisfy the required quality level and is the highest priority data with the longest/most data in it's respective buffer (eg. transmit/retransmit in successive order the buffers containing the most data from the highest priority users first).

The examiner notes that TCP has ACK/NACK functionality that operates in a similar fashion and Wang discloses TCP/IP in figure 2. Hence, the mobile would

request a retransmission of data if it is determined that said data was corrupted (eg. via CRC) but one skilled would ensure that any available transmitter can be used except those that are currently transmitting OR those that are in process of waiting for a transmission timer to expire (eg. sent data but may need to send it again if corrupted during transmission). This ensures that only completely free transmitters are used and do not impinge on any supporting communications. Raitola teaches a "limit" on how many times a retransmission may be requested. One skilled can also adapt this to be a time limit such that the unit will retransmit if an Acknowledgement is not received within a certain amount of time.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Wang, such that the BTS providing a data service to the selected one of mobiles based on C/I and selecting by the BTS a transmitter having a C/I received from the mobiles among the transmitters other than transmitters having no data and transmitters whose response waiting time has not expired after transmitting data and transmitting data to the selected mobiles, to provide means for enhancing QoS functionality by monitoring C/I to determine which antenna to use for RF transmission from the many that are not being used.

As per **claim 8**, Wang in view of Raitola teaches claim 7 **but is silent on** wherein BTS selects a transmitter having a longer data length among transmitters, when the number of transmitters selected according to the priority is larger than 2.

Wang teaches use of QoS which provides differently sized data packets via varying data channel bandwidths. Hence, one skilled would provide for a user with a large amount of data to transmit with a transmitter having a longer data length to allow for larger packets to be sent.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Wang in view of Raitola, such that the BTS selects a transmitter having a longer data length among transmitters, when the number of transmitters selected according to the priority is larger than 2, to provide means for a large amount of data to be transmitted via a longer length packet for high(er) priority QoS data users.

As per **claim 9**, Wang in view of Raitola teaches claim 1 **but is silent on** comprising the step of retransmitting the transmitted data upon failure to receive a response signal form the mobile within predetermined time after transmitting the data stored in the transmitter associated with the selected mobile.

Raitola teaches a "limit" on how many times a retransmission may be requested. One skilled can also adapt this to be a time limit such that the unit will retransmit if an Acknowledgement is not received within a certain amount of time. The examiner notes that TCP has timer/timeout functionality that operates in a similar fashion and Wang discloses TCP/IP in figure 2.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Wang in view of Raitola, such that it retransmits data upon failure to receive a response signal from the mobile station within a predetermined

time after transmitting the data stored in the transmitter associated with the selected mobile, to provide means for ensuring that data is timely received and acknowledgement during transmission.

As per **claim 10**, Wang in view of Raitola teaches claim 6 **but is silent on** comprising the step of retransmitting only previously failed data when a response signal received from the mobile station within a predetermined time after transmitting the data stored in the transmitter associated with the selected mobile indicates that an error has occurred in part of the transmitted data.

The examiner notes that TCP has ACK/NACK functionality that operates in a similar fashion and Wang discloses TCP/IP in figure 2. Hence, the mobile would request a retransmission of data if it is determined that said data is corrupted (eg. via CRC).

Raitola teaches a "limit" on how many times a retransmission may be requested. One skilled can also adapt this to be a time limit such that the unit will retransmit if an Acknowledgement is not received within a certain amount of time.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Wang in view of Raitola, such that it retransmits only previously failed data when a response signal received from the mobile station within a predetermined time after transmitting the data stored in the transmitter associated with the selected mobile indicates that an error has occurred in part of the transmitted data, to provide means for ensuring that data is timely received if corruption occurs during transmission.

Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. and Raitola as applied to claim 6 above and further in view of Goldberg et al. US 5,724,662 (hereafter Goldberg).

As per **claim 7**, Wang in view of Raitola teaches claim 6 **but is silent on** wherein the BTS selects a transmitter with a queue having a high priority among the transmitters, when the number of transmitters selected based on the C/I received from the mobile is larger than two.

Wang does disclose QoS support which uses classes of service (see figure 2, #212) for high, medium and low priorities.

Goldberg teaches a method in RF communications for assigning and utilizing sets of transmitters (eg. two or more) to support mobile-to-BTS communications (title, abstract, figures 1 and 3 and C1, L45-52).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Wang in view of Raitola, such that the BTS selects a transmitter with a queue having a high priority among the transmitters, when the number of transmitters selected based on the C/I received from the mobile is larger than two, to provide means for monitoring C/I from multiple antenna links to support RF communications for QoS-buffered packet transfer.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. D'Agosta whose telephone number is 703-306-5426. The examiner can normally be reached on M-F, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Trost can be reached on 703-308-5318. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Stephen D'Agosta
PRIMARY EXAMINER
3-7-2005